

NASA TECH BRIEF

Marshall Space Flight Center



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Deflection Resistance Indicator

The problem:

Spray foam insulation with poor compression resistance has properties which make it unsuitable as thermal insulation. Previously, no method existed that would determine the quality of spray foam insulation.

The solution:

An instrument was developed which measures compression resistance of the spray foam. This test method is nondestructive.

How it's done:

The indicator, shown in the figure, is a cylindrical 7.5-cm (3-in) instrument, approximately 15 cm (6 in) long, and 5 cm (2 in) in diameter. It has a 7.5-cm (3-in) diameter foot, with a 2.5-cm (1-in) diameter probe on the bottom. Inside, a coil spring provides force downward upon the probe. On top, a dial indicator is mounted to measure the movement of the probe.

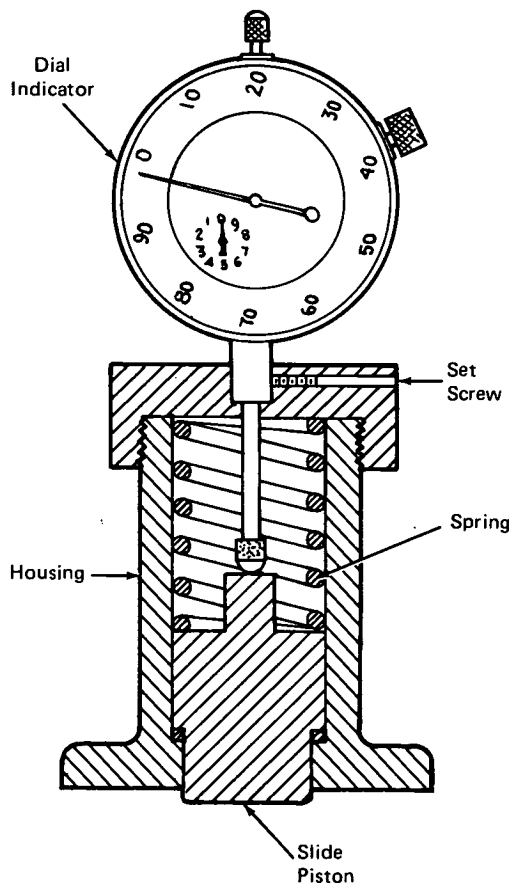
To operate, the foot of the indicator is placed against the area to be tested. The indicator is then manually pressed against this area until the complete 7.5-cm diameter foot area contacts the surface. The dial indicator is then read to determine how deep the 2.5-cm diameter probe has compressed the test area of the foam.

Foam with acceptable properties will compress very little, while foam which has unsuitable properties will compress to a greater extent and give a larger deflection reading.

Note:

Requests for additional information may be directed to:

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Reference: B72-10401



Patent status:

No patent action is contemplated by NASA.

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under contract to
Marshall Space Flight Center
(MFS-24010)

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